Framework for National Park Service Inventory and Monitoring

The NPS strategy to institutionalize inventory and monitoring throughout the agency consists of a framework having three major components: (1) completion of 12 basic resource inventories upon which monitoring efforts can be based; (2) a network of 11 experimental or "prototype" long-term ecological monitoring (LTEM) programs begun in 1992 to evaluate alternative monitoring designs and strategies; and (3) implementation of operational monitoring of critical parameters (i.e. "vital signs") in approximately 270 parks with significant natural resources that have been grouped into 32 vital sign networks linked by geography and shared natural resource characteristics.

Natural Resource Core Inventories: All natural resource parks must posses at least a minimal compliment of resource inventory information in order to be able to deal effectively with park planning, management, and protection of natural resources. The minimal inventory information required by all parks has been defined in terms of 12 data sets that include a variety of biotic and abiotic ecosystem components. The 12 data sets are as follows:

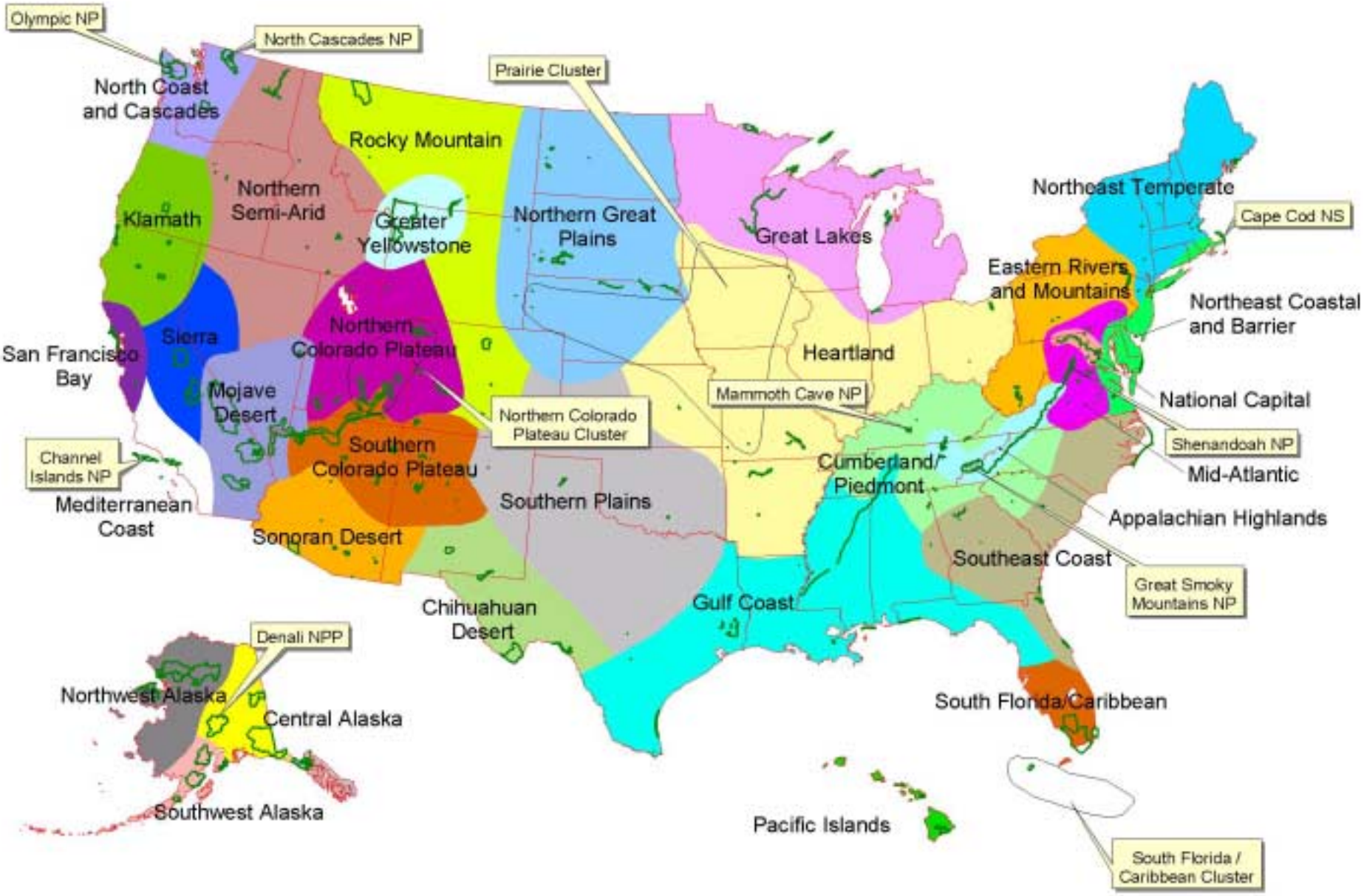
- Natural resource bibliography
- Base cartographic data
- Geology map
- Soils map
- Weather data
- Air quality
- Location of air quality monitoring stations
- Water body location and classification
- Water quality data
- Vegetation map
- Documented species list of vertebrates and vascular plants
- Species distribution and status of vertebrates and vascular plants

Prototype Monitoring Programs: The prototype LTEM programs were established in the early 1990s primarily in an attempt to learn how to design scientifically credible and cost-effective monitoring programs in ecological settings of major importance to a number of NPS units. Much of the design, development, and testing of monitoring protocols is conducted in prototype parks in cooperation with scientists from the U.S. Geological Survey. Because of higher funding and staffing levels, as well as USGS involvement and funding in program design and protocol development, the prototypes are expected to serve as "centers of excellence" that will be able to do more extensive and in-depth monitoring and continue research and development work to benefit other parks. Prototype LTEM programs possess a wealth of experience and expertise related to the development and implementation of ecological monitoring that can greatly benefit other parks throughout the NPS. The prototype programs provide mentoring assistance to other parks undertaking long-term ecological monitoring, and provide technical assistance to staff from other parks on a wide variety of technical issues related to monitoring, including conceptual design, database management, data integration and analysis, and reporting of monitoring findings.

Vital Signs Networks: In FY 2000, as part of the Natural Resource Challenge, the NPS implemented a new strategy for natural resource monitoring in parks with significant natural resources, whereby 270 parks with significant natural resources (including all of the prototype parks) were organized into 32 networks linked by geography and shared natural resource characteristics (see map). The network approach will facilitate collaboration, information sharing, and economies of scale in natural resource monitoring, and will provide parks with a minimum infrastructure for initiating natural resource monitoring that can be built upon in the future. As part of a new framework for inventory and monitoring, prototype LTEM programs are nested within a network structure, and provide expertise and support to other parks in their network as well as providing protocols and expertise to parks throughout the NPS. The level of funding available through the Natural Resource Challenge will not allow comprehensive monitoring in all parks, but will provide a minimum infrastructure for initiating natural resource monitoring in all parks that can be built upon in the future.

Parks in each of the 32 networks share funding and staffing provided by the Servicewide Inventory and Monitoring Program and other divisions of the Natural Resources Program Center, and provide additional funding and staffing from other sources (e.g., base-funded positions, partnerships). Each of the 32 park networks is guided by a Board of Directors (usually comprised of park superintendents and the regional and network coordinators) who specify desired outcomes, evaluate performance for the monitoring program, and promote accountability. The working relationships and descriptions of the procedures the board uses to make decisions is codified in the form of a network charter signed by each of the park superintendents. An example of how the parks in each network might work together is contained in the following vision statement for the North Coast and Cascades Network:

- In response to the Natural Resources Challenge, the seven National Park Service units in the North Coast and Cascades Network work collaboratively to design and implement a Network Monitoring Program to focus collective efforts on inventory, monitoring and research on natural ecosystems. This will result in a comprehensive body of knowledge that provides timely and relevant, scientifically credible information to Park managers and the public.
- Through these efforts we will be better able to understand, and explain to others, the status and trends in key components and indicators of Park ecosystems, and how they have and will respond over time to natural and human induced changes both from within and outside of Park boundaries.
- This comprehensive, integrated long-term ecological monitoring program provides for better protection, restoration and maintenance of the natural ecosystems under NPS management.
- The Network Monitoring Program collaborates with complimentary monitoring efforts of all levels of government, in order to achieve the greatest level of protection to natural resources and to contribute a body of knowledge to address broader, regional natural resource issues.


Olympic NP
North Cascades NP
Prairie Cluster
North Coast and Cascades
Rocky Mountain
Northern Semi-Arid
Klamath
Greater Yellowstone
Northern Great Plains
Great Lakes
Northeast Temperate
Cape Cod NS
Eastern Rivers and Mountains
Northeast Coastal and Barrier
Sierra
San Francisco Bay
Northern Colorado Plateau
Heartland
Mammoth Cave NP
National Capital
Mojave Desert
Northern Colorado Plateau Cluster
Shenandoah NP
Channel Islands NP
Southern Colorado Plateau
Cumberland/ Piedmont
Mid-Atlantic
Mediterranean Coast
Southern Plains
Appalachian Highlands
Sonoran Desert
Southeast Coast
Great Smoky Mountains NP
Chihuahuan Desert
Gulf Coast
Denali NPP
Northwest Alaska
Central Alaska
South Florida/Caribbean
Southwest Alaska
Pacific Islands
South Florida / Caribbean Cluster